

• SCIENCE TODAY AND TOMORROW

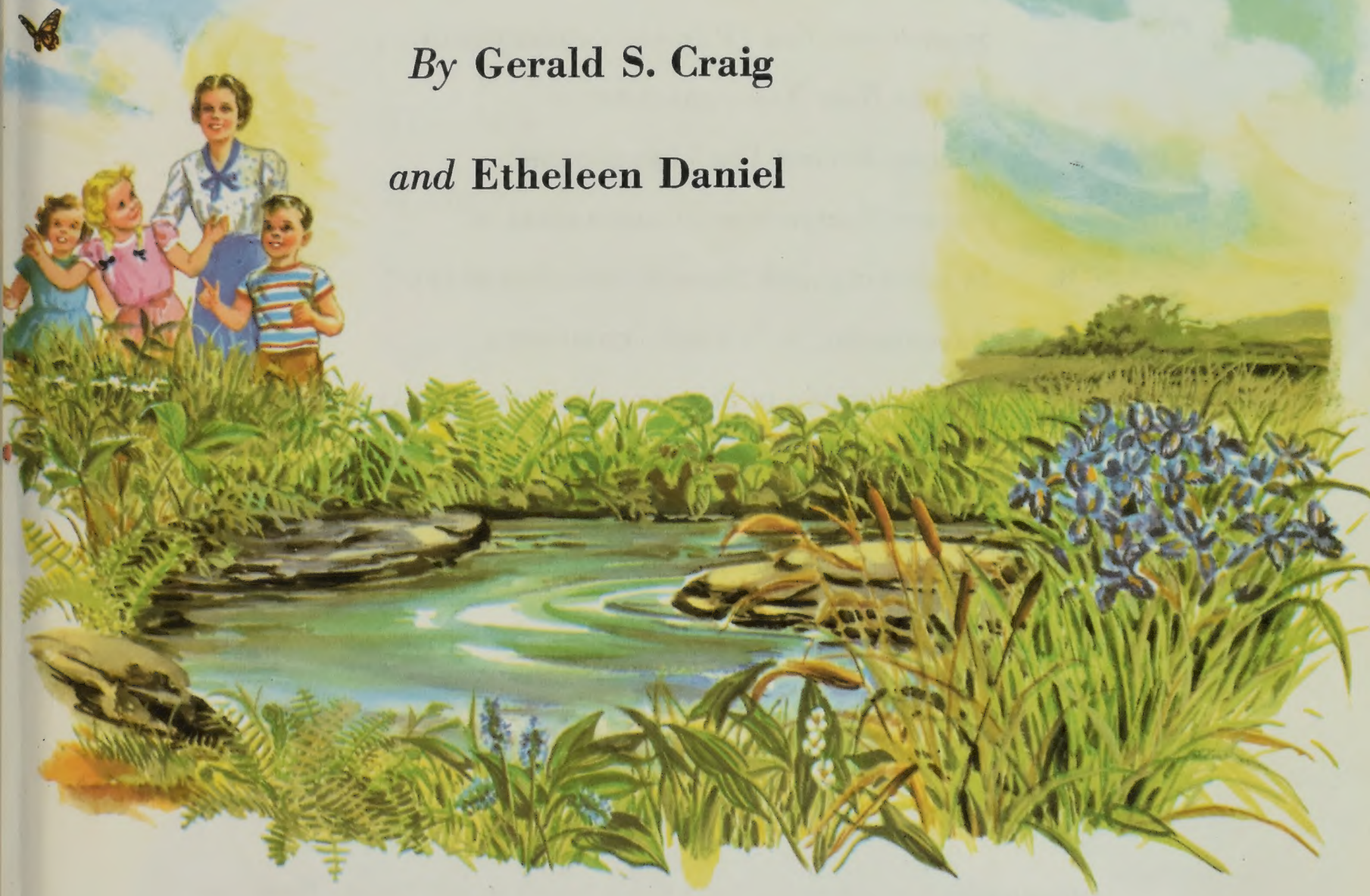
Science Around You



CRAIG | DANIEL

Science Around You

By **Gerald S. Craig**
and **Etheleen Daniel**



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SCIENCE TODAY AND TOMORROW

Science and You (Primer) · CRAIG-BRYAN

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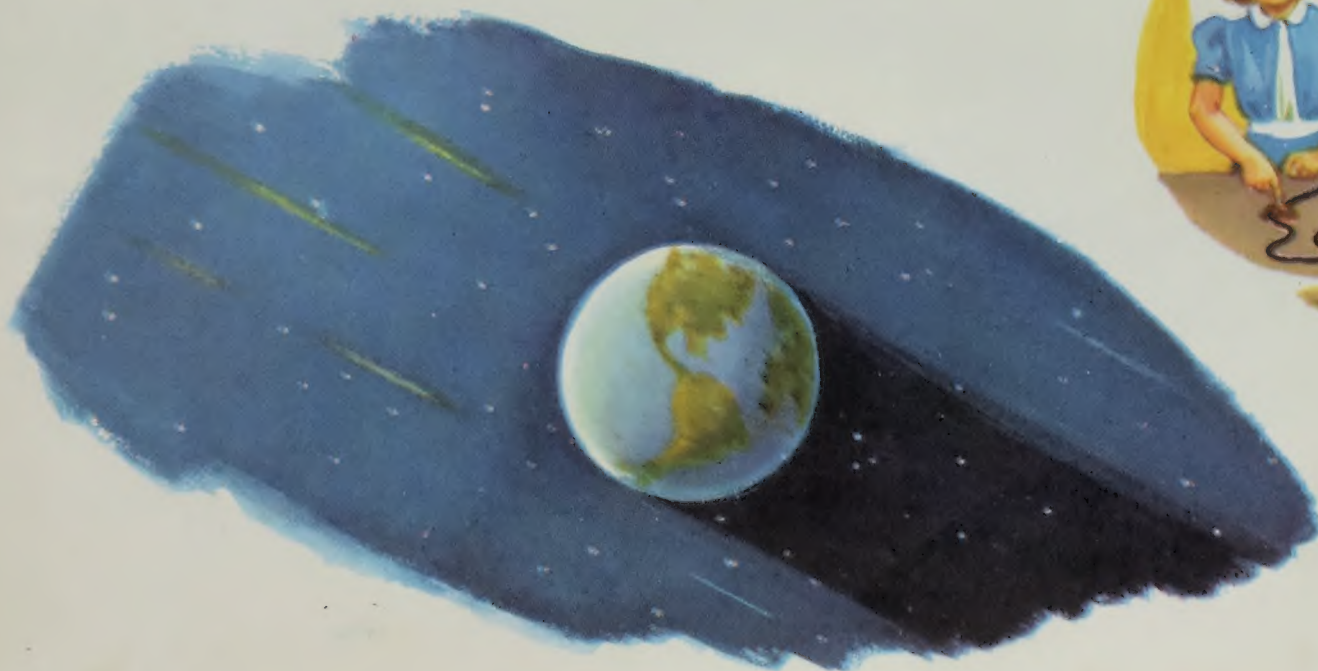
Facing Tomorrow with Science · CRAIG-URBAN

A Teachers' Manual accompanies each book

Illustrations by CORINNE DILLON, WILLIAM BARTLETT, *and* MAURICE ROBERTSON

Contents

Summer	PAGE 4
Autumn	12
Air, Water, Weather	24
Our Earth	40
The Sky	52
Winter	64
Sounds Around You	78
Spring	90
Friction	110
Making Things Move	118
Care of the Farm	132



Summer





In the Summer

This is the way it looks where Mary lives.

This is the way it looks outdoors in the summer.

Many of the plants have flowers now.

Many animals are about in the summer.

How does it look in the summer around you?

Water for Plants

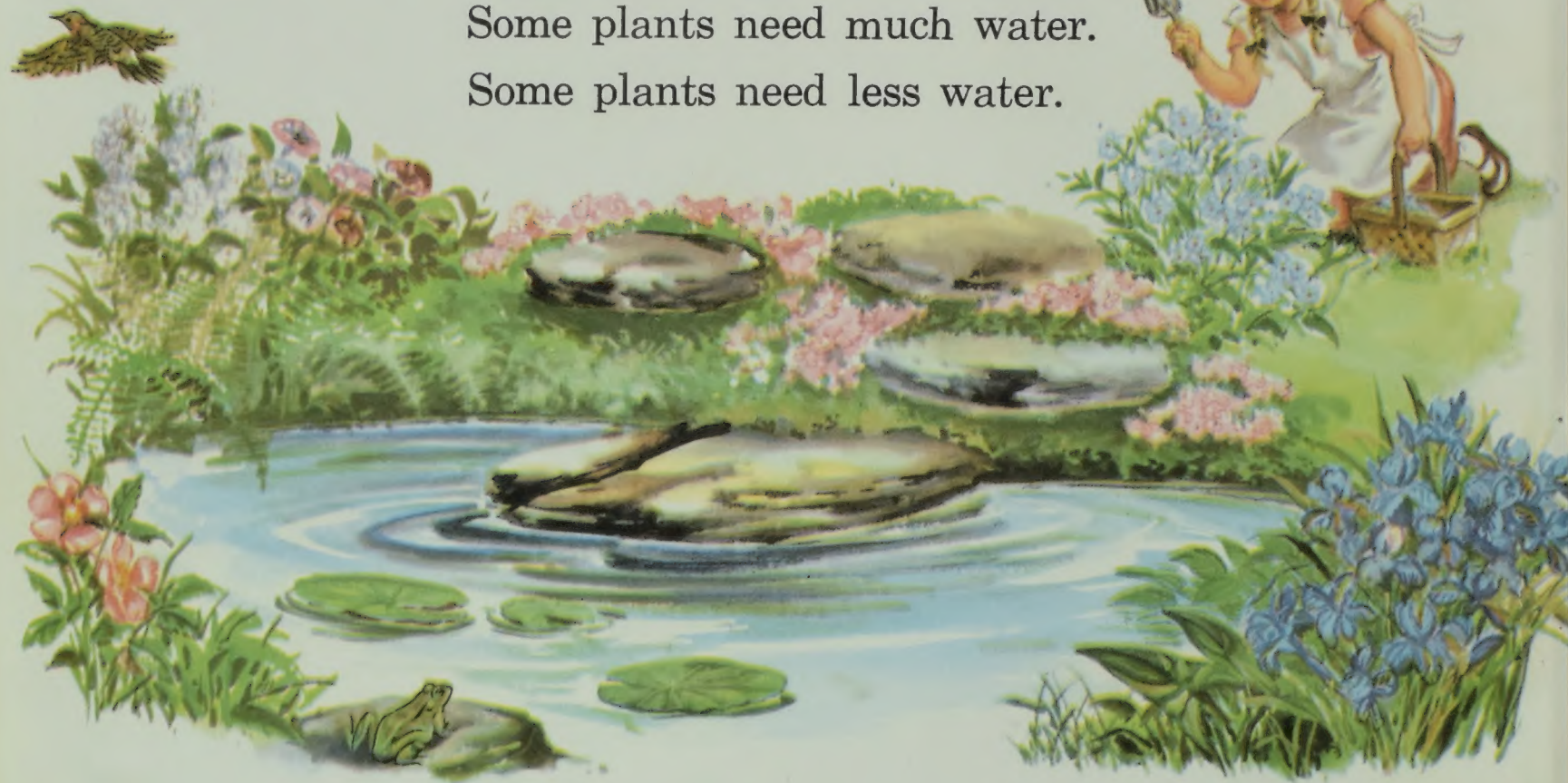


Plants need water.

They need water to grow.

Some plants need much water.

Some plants need less water.



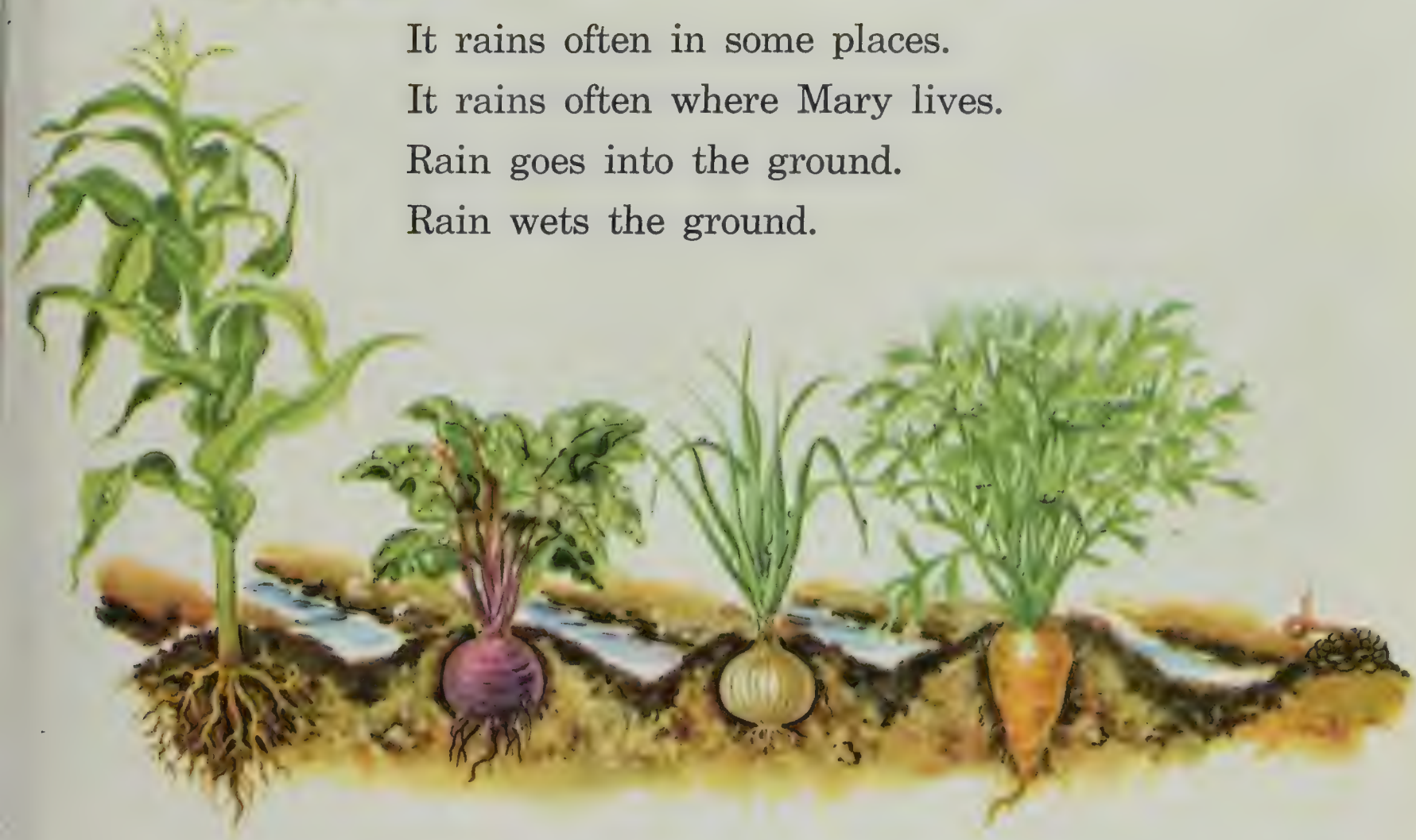
Some plants grow near water.

Some plants grow in water.

Do plants around you need much water?



It rains often in some places.
It rains often where Mary lives.
Rain goes into the ground.
Rain wets the ground.



Some of the water goes into the roots.
The root is part of the plant.

How do plants around you get water ?



Dry, Hot Summers

Some places are very dry.
They are very dry in summer.
It is very dry where Tom lives.
Tom lives far away from Mary.





The days are very, very hot.
Many days come and go without rain.
The plants in Tom's garden must have water.
They must have water if they are to grow.

Water from Far Away

It is dry much of the time where Tom lives.
There is very little rain in this place.
The plants must have water to live.
Tom helps to get water to the plants.
He helps to make ditches near the plants.



The water goes into the ditches.

It comes from far away.

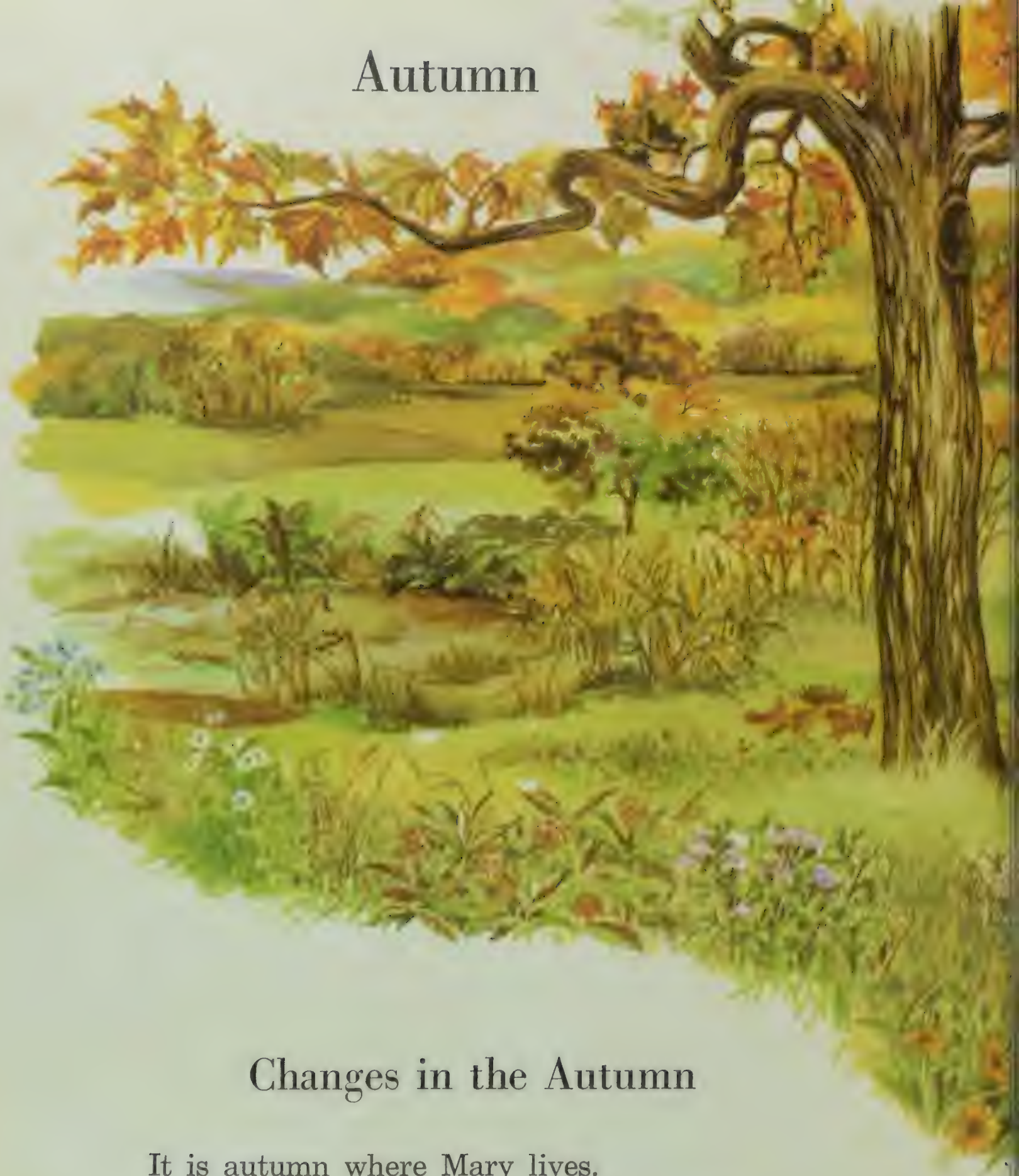
It comes from the snow far away.

It helps the plants to grow.

How does water get to plants near you ?



Autumn



Changes in the Autumn

It is autumn where Mary lives.
The children and Miss Day go for a walk.
They go to the big woods and to the meadow.
They see how things change.



The leaves were green in the summer.
Now they are red and yellow and brown.
The leaves are falling to the ground.

"Let's take some leaves," said Mary.
"Take them from the ground," said Miss Day.
"Let the leaves stay on the tree.
They belong to the tree.
The leaves help the tree.
They will fall when they are ready.
Leaves change in the autumn."

Leaf buds



Leaf Buds in the Autumn

The children see the leaf buds.

The leaf buds are small and hard now.

They will open in the spring.

New leaves will grow out of the leaf buds.

They will grow out of them in the spring.

Leaf buds

The leaf buds belong to the tree.

The children will look at them outdoors.

They will look at them often.

They will not take them from the tree.

Where can you look for leaf buds?



Seeds in the Autumn

"Some plants have seeds now," said Bob.

"May we take some seeds with us?"

"The seeds fall to the ground," said Miss Day.

"Many of them will grow into new plants.

They will grow into new plants in the spring."

"Let's leave the seeds here," said Mary.

"They belong outdoors.

We can look at our plants outdoors.

We can look at them all through the winter."

"Our meadow will need new plants," said Bob.

"It will need new plants in the spring."



Seeds Are Moved About

Many, many seeds fall to the ground.
But many seeds cannot grow in one place.
Some of them are moved away.

Seeds are moved about in many ways.
The wind moves some seeds.
Animals move some seeds.
Water moves some seeds.
New plants may grow from seeds.
They will grow when spring comes.
They may grow far away.

Where can you look for seeds?
How do they get moved about?



Experiments with Seeds

Mary plants some seeds.
She plants them this way.
Will they grow well?



Bob plants some seeds.
He plants them this way.
Will they grow well?



Mary's seeds grow this way.
Are they growing well?



Bob's seeds grow this way.
Are they growing well?



Plant some seeds at school.
Plant them Bob's way.
Watch them grow.
Do your seeds grow well?



Animals Make Changes

"Here is a caterpillar," said Bob.

"Look how it eats and eats."

"Soon it will make a cover," said Miss Day.

"The caterpillar will make a cover all around it.

It will make a cover before winter comes.

A caterpillar makes changes in the autumn."

"Here is a caterpillar that has made changes.
It has a cover all around it," said Bob.
"A caterpillar made this butterfly chrysalis.
It is in the chrysalis now," said Miss Day.

"Let's take the butterfly chrysalis," said Bob.
"Oh, no," said Mary. "Our school is too warm.
The butterfly may come out too soon.
It may come out of the chrysalis too soon."
"It may come out in the winter," said Bob.

The children do not take the chrysalis.
They do not want the butterfly to come out too soon.
It is too cold for a butterfly in winter.
In the spring it will not be too cold.





Birds in the Autumn

Many birds are around.
They do not make much noise.
They do not fly about much.

The birds lose some feathers.
They lose them in the autumn.
Their old feathers are falling out.
New feathers are growing in.

Many birds fly south in the autumn.
Some of them will fly south now.
Some will fly south tomorrow.
Some will fly south later.

Now the birds are eating and eating.
They eat in little flocks near the ground.
They fly around and around.
Then the flock comes down.
The flock comes down to eat again.
Soon it will fly away.



Use Old Leaves

Take a walk in the woods in the autumn.

The leaves make a very good carpet.

Look at the carpet of leaves.

Look under the colored leaves.

Are they breaking into little parts?

Use your old leaves in the autumn.

Make a hole in the ground.

Make a hole for your leaves.

Then put the leaves into it.

The leaves will break up.

They will break into little parts.

The little parts help to make soil.

Leaves help to make good soil.





What Changes Do You See?

1. What changes do you see in the autumn?

Make a picture of the autumn.

Show the changes that you see around you.

2. Go for a walk in the autumn.

What birds do you see?

What sounds do they make?

Do they make much noise?

Do you see little flocks of birds?

3. Look at the carpet of leaves around you.

How do the leaves make good soil?

Air, Water, Weather



Air Around You

Air is over Tom's garden.

It is over the ditches.

It is around Tom.

Air is around you.

It is around other children.

Air is all around.

Air is over Betty's city.

It is over the trees.

It is over the streets.

Air goes up high over you.

It goes up high above the ground.

It goes up high above the clouds.

Clouds are in the air.

You are in the air all the time.

Air is around you all the time.

Air is over you all the time.

Air

Air

Air



Dust in the Air



Is there dust in the air around you?
How does dust get into the air?

Betty sees dust in the air around her.
The dust is all around her.
She helps to clean the dust away.



Bill sees dust in the air, too.
The wind is blowing dust all around.
There is no grass to hold the soil.

Bill is walking on grass here.
The wind is blowing.
But the soil does not blow around.
There is little dust in the air.
Grass helps to hold the soil.
Grass helps the air to be clean.

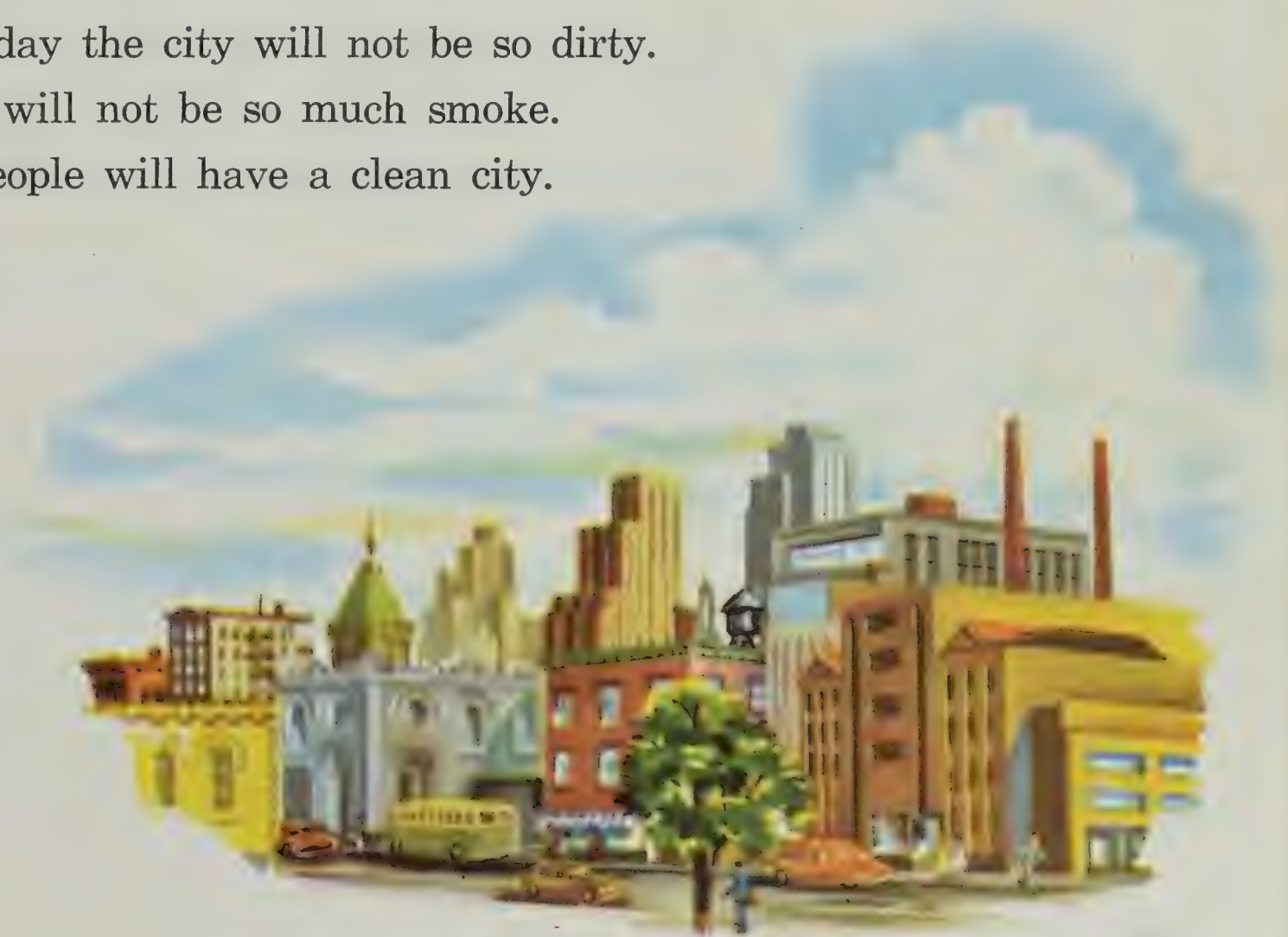


Smoke in the Air

There is smoke above the city.
The smoke goes above the houses.
The smoke goes above the school.
Up, up, the smoke goes into the air.

The smoke makes the city dirty.
It makes the streets dirty.
It makes the houses dirty.
People must work to clean the city.
They must work to clean the school.
They must work to clean their homes.

Some day the city will not be so dirty.
There will not be so much smoke.
The people will have a clean city.





Water Goes into the Air

Bob put a little water into a glass.

He looked at the glass later.

The water was gone.

"Who poured the water out?" asked Bob.

"Did you pour it out, Miss Day?"

"No," said Miss Day, "I did not pour it out."

"I did not pour it out," said Mary.

"Let's do the experiment again," said Bob.

"Let's put some water in the glass."

Bob looked at the glass later.

The water was gone.

"Maybe the glass leaks," said Mary.

"There are no holes in the glass," said Bob.

"Then it does not leak," said Mary.

"Where did the water go?" asked Bob.

"Did it go into the air?"

Water goes into the air.

Air is above the glass.

Air is all around the glass.

You cannot see the air.

You cannot see water in the air.

But air can hold water.

Water evaporates into the air.

Do you know where water evaporates?



There is water here



Now there is little water

Water Comes out of the Air

The pitcher feels warm and dry.

Betty puts ice into the pitcher.

Soon it feels wet and cold.

Betty looks at the pitcher later.

There is water on the cold pitcher.

Where did the water come from ?

The water came out of the air.

The air around the pitcher was warm.

The cold pitcher cooled the warm air.

Then water came out of the air.

It made tiny drops on the pitcher.

There is some water in the air all the time.

You cannot see it in the air.

But sometimes you can see water
that comes out of the air.





Betty is growing plants in a jar.
Water goes into the air from the soil.
Water goes into the air from the plants.

The air in the jar moves about.
Sometimes it is cooled at the top of the jar.
Then drops of water come out of the air.
The water falls down on the soil and plants.
The water will go into the air again.
It will be cooled at the top of the jar.
Then drops of water will come out of the air.
The water is used over and over again.

Betty said, "It rains in my jar.
The top of my jar is something like a cloud."

Clouds in the Air



Clouds are in the air.
Some clouds are high in the air.



Some clouds are low in the air.
Do you see clouds in the sky now?

Rain from the Air



Now there are dark clouds in the sky.
Rain is falling, falling, falling.

Sometimes there is much water in the air.
There is more water than the air can hold.
Then the water comes out of the air.
It drops from the clouds.
The water drops down, down, down.
The water drops to the ground.
Then we have rain.

Snow from the Air



There is some water in the air all the time.
You see it as clouds. You see it as rain.
The rain comes out of the air.



Snow comes from the air, too.
There is water that you cannot see in the air.
This water sometimes freezes into snow.
The air is cold when it snows.

Warm Air and Cold Air

Sometimes the air around you changes.

Air may change from cool to cold.

It may change from warm to hot.

A thermometer tells you something about the air.

A thermometer tells you how warm the air is.

It tells you how cold the air is.



Thermometers help many people.

They help you to know how cold it is.

They help you to know how warm it is.

How do you see thermometers used ?

Watch the Weather About You

What kind of weather do you have now?

Make a record of your weather.

Make a record of each day's weather.

Make a picture record for a few days.

You may use these pictures to help you.

Tell about the wind.

Is the wind blowing a little?

Is it blowing much?



Little wind



Much wind

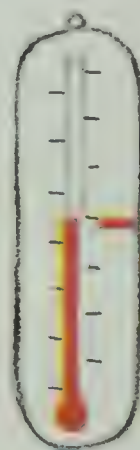
Tell how the air feels.

How warm does the air feel?

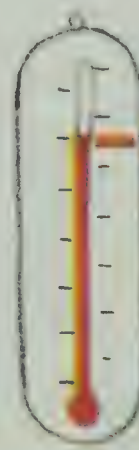
How hot does the air feel?

How cool does the air feel?

How cold does the air feel?

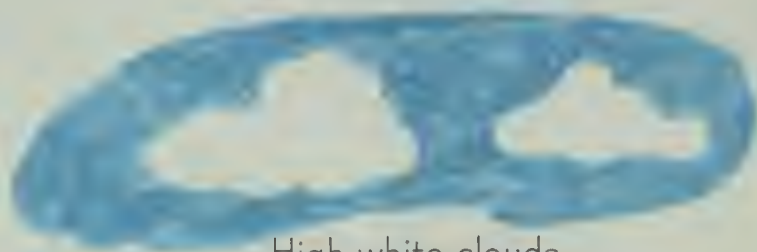


Cool

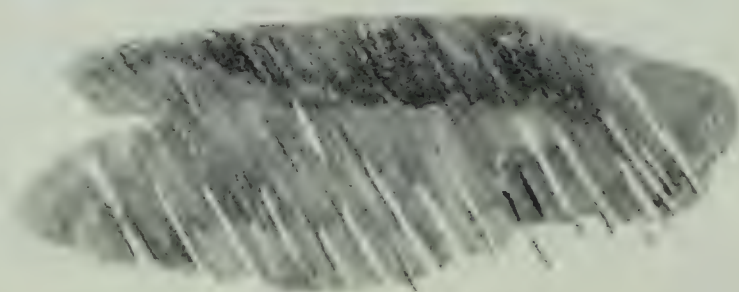


Hot

80



High white clouds



Low rain cloud

Tell about the clouds.




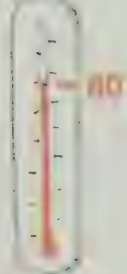


Do you see clouds?

Do you see white clouds?

Do you see rain clouds?

Do the clouds move fast?

Make a Weather Record

Weather Record						
	The Sky		The Air		The Wind	
Day	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
Monday						

You can make a weather record.

You can watch the weather change.

It may change during the day.

It may change from day to day.

In some places it may change quickly.

There are many kinds of weather.

What kinds of weather do you have?

Does it change during the day?

Does it change from day to day?



Ice and Snow Melt

The sun is shining.
The air feels warm.
The ground is warm.

Ice and snow melt.
They melt when it is warm.
Ice changes to water.
Snow changes to water.
Ice and snow melt.

Do this experiment.
Put water into a tray.
Put the tray in a cold place.
The water in the tray changes to ice.
The water freezes into ice.

Now put the tray in a warm place.
Watch the ice in the tray melt.
The ice in the tray is cold and wet.
Ice changes to water.



What Is in the Air?

1. Can you grow plants in a jar?

How is the top of your jar like a cloud?



2. Put one glass of water in each of these.

Where does water evaporate fast?

Where does water evaporate slowly?

Where does the water go?



3. Does the cup on the table leak?

How does the water get on the cup?

Where does the water come from?



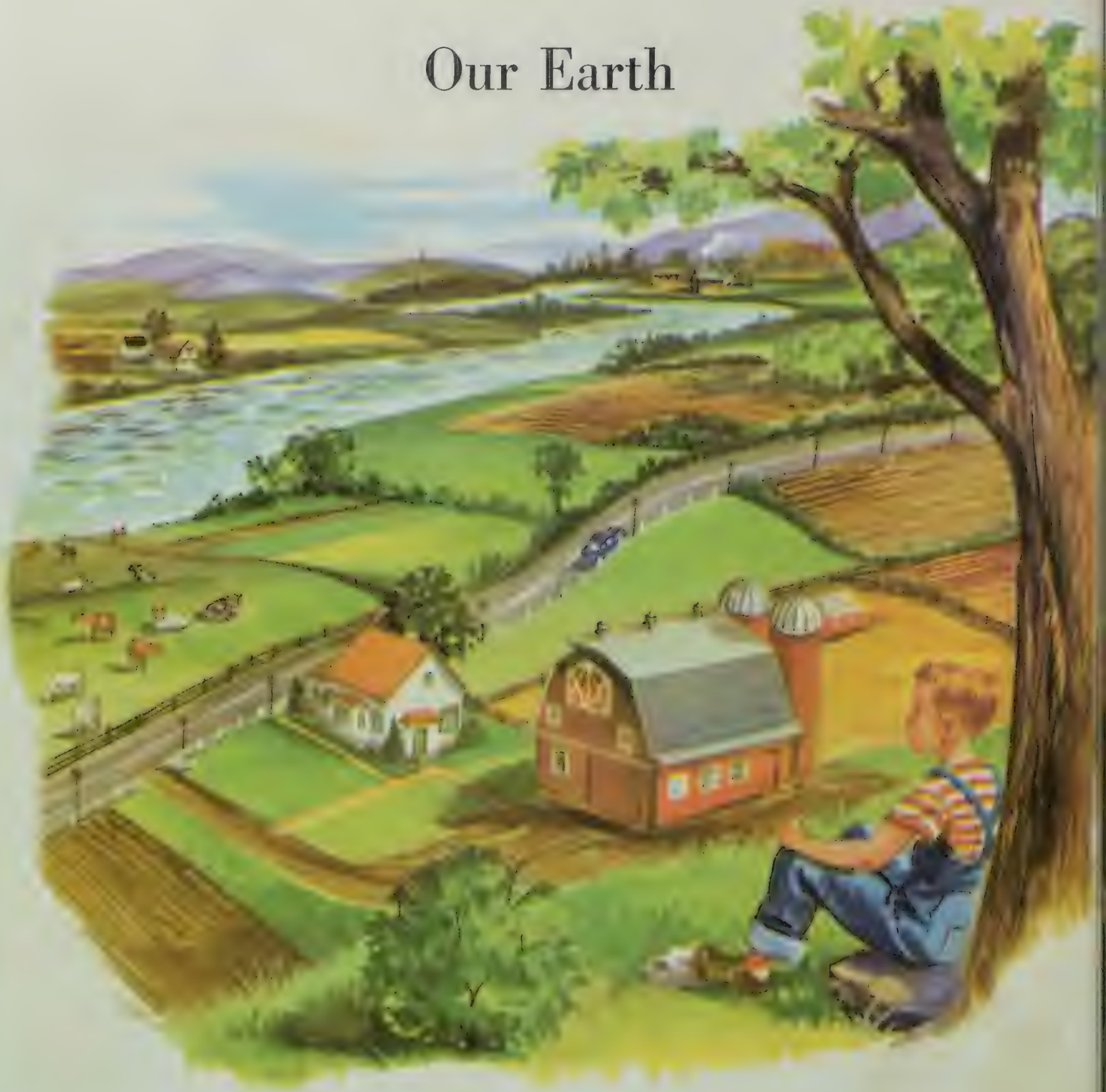
4. What do you see in the air around you?

Do you see clouds in the air?

Do you see dust in the air?

Do you see smoke in the air?

Our Earth



Our Large Earth

Jim looks around him.
He sees his father's farm.
He sees the cows.
They are near the river.

Jim sees the hills.
Some are near the river.
Some hills are far away.
Jim sees other farms, too.

Betty looks around her.
This is what she sees.
Betty sees trees.
The trees are in the park.

Betty sees cars.
They are near the lake.
She sees boats on the lake.
She sees part of the city.





Jim's farm is a part of the earth.
Betty's city is a part of the earth.
Jim's farm is only a tiny part of the earth.
Betty's city is only a tiny part of the earth.
There are many farms on the earth.
There are many farms and cities on the earth.
There are many people on the earth.
We all live on the earth.

The ground is part of the earth.
The ocean is part of the earth.
The air belongs to the earth.
The clouds belong to the earth.





Our Earth Is Round

Betty lived far, far away.

Now she lives in a big city.

She came from far away to the city.

It took Betty a long time to get to the city.

She rode on a train part of the way.

She rode on a ship part of the way.

Then she rode in an airplane.

Then Betty rode in a car.

But she did not leave our big, round earth.



Ocean

Our earth is round.
It is like a very big ball.

Ships go around the earth.
Ships go on the waters of the earth.
Airplanes fly around the earth.
They fly in the air of the earth.
You may go around the earth sometime.
You may go in a ship or an airplane.

There are many, many people on the earth.
We all live on the big, round earth.




Our Earth Moves

Our earth is a big, moving ball.
It is moving all the time.
It never stops moving.

It moves all day. It moves all night.
The earth takes you with it all the time.
It gives you a ride all the time.
You ride on the earth all the time.

The earth moves very fast.
The earth moves faster than ships.
The earth moves faster than trains.
The earth moves faster than airplanes.



You do not feel the earth moving.
It is a very, very big ball.
You cannot feel it moving.
It keeps on moving all the time.

A train starts and stops.
It starts and stops many times.
Sometimes it moves fast.
Sometimes it moves slowly.
It starts and stops again and again.

But the earth keeps on moving.
It moves fast all the time.
It never, never stops.
It keeps on moving all the time.

Night and Day on Our Earth

The earth moves all the time.

Jim's farm moves with the earth.

Now Jim's farm is in the sunlight.

The sun is shining on his farm.

It is daytime. Jim is at school.

Now it is night at Jim's farm.

The sun is not shining on his farm.

It is dark around Jim's farm.

Jim is at home. He is sleeping.

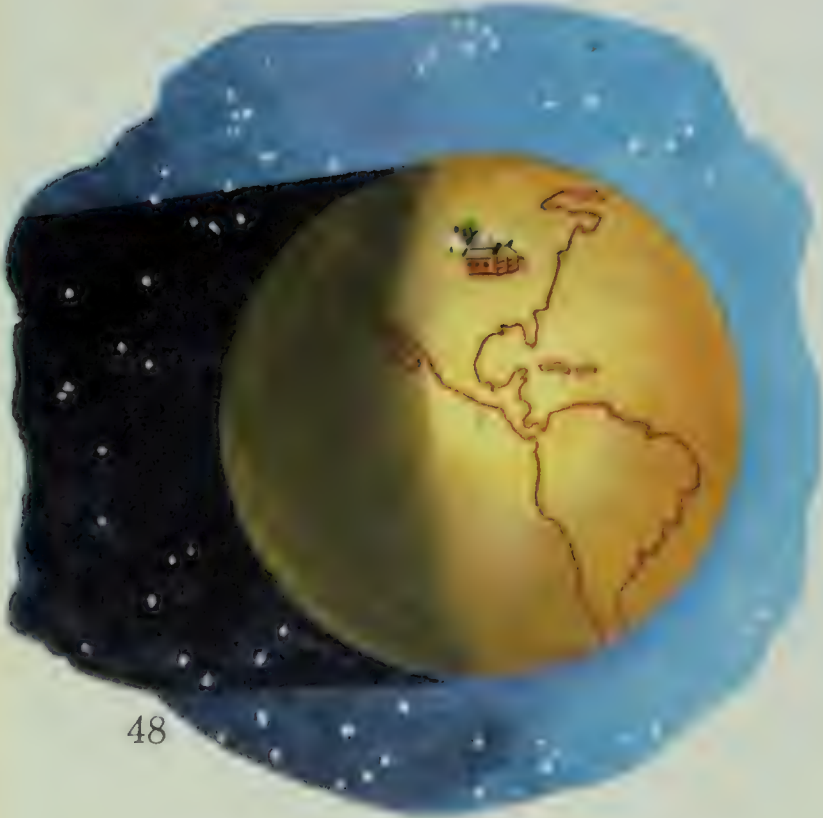
The earth is moving all the time.

The sun is shining all the time.

The sun is shining somewhere at night.

It is shining somewhere on the earth.

Jim's farm, day



Jim's farm, night



Sunlight and Shadows



Do this on a sunny day.

Hold your book in the sunshine.

Does the sunlight go through your book ?

Do you see the shadow of the book ?

Now use some window glass.

Hold the glass in the sunshine.

Does the glass stop the sunlight ?

Does the sunlight go through the glass ?

The book stops the sunlight.

The book makes a shadow.

The glass does not stop the sunlight.

It does not make a shadow.

Making Shadows

The picture shows how to make a shadow.

Where should you be to make a shadow?

Where should the light be?

What makes the shadow?

Mary stops the light.

She makes the shadow.





Thinking About Our Earth

What stops the sunlight?

What makes the shadows?

Go to any place where you can see far away.

What do you see on part of our earth?

What do you see very near you?

What do you see far, far away?

Can you make a picture of what you see?

How do you know that the earth is big?

How do you know that it is moving all the time?

The Sky



The Sun Is Far Away

The sun is far away in the sky.

The sun is far, far away.

It is far away from our earth.

The sun is not a part of the earth.

The Sun Is Hot

The sun is very, very hot.

It is a hot ball far, far away.

It is so hot that it heats the earth.

It is so hot that light comes from it.

The sun lights the earth.

It heats the earth, too.

The sun heats and lights the earth.

The sun is hotter than a candle.

It is hotter than any stove.

It is hotter than many, many stoves.

It is hotter than all candles and all stoves.

The sun is hotter than any fire on earth.

The Morning Sun

It is morning where Mary lives.

It is morning on the farm.

Mary sees the sun in the east.

She sees it over the hill.

The sun looks small to Mary.

It looks smaller than the hill.

It looks smaller than the house.

It looks smaller than the trees.

But is the sun small?

Is it as small as it looks to Mary?

Watch the sun in the morning.

Watch the sun in the east.





The Afternoon Sun

It is afternoon on the farm.

Mary sees the sun in the west.

It is not back of the hill now.

It is back of the house.

The sun looks small to Mary.

It looks smaller than the house.

It looks smaller than the trees.

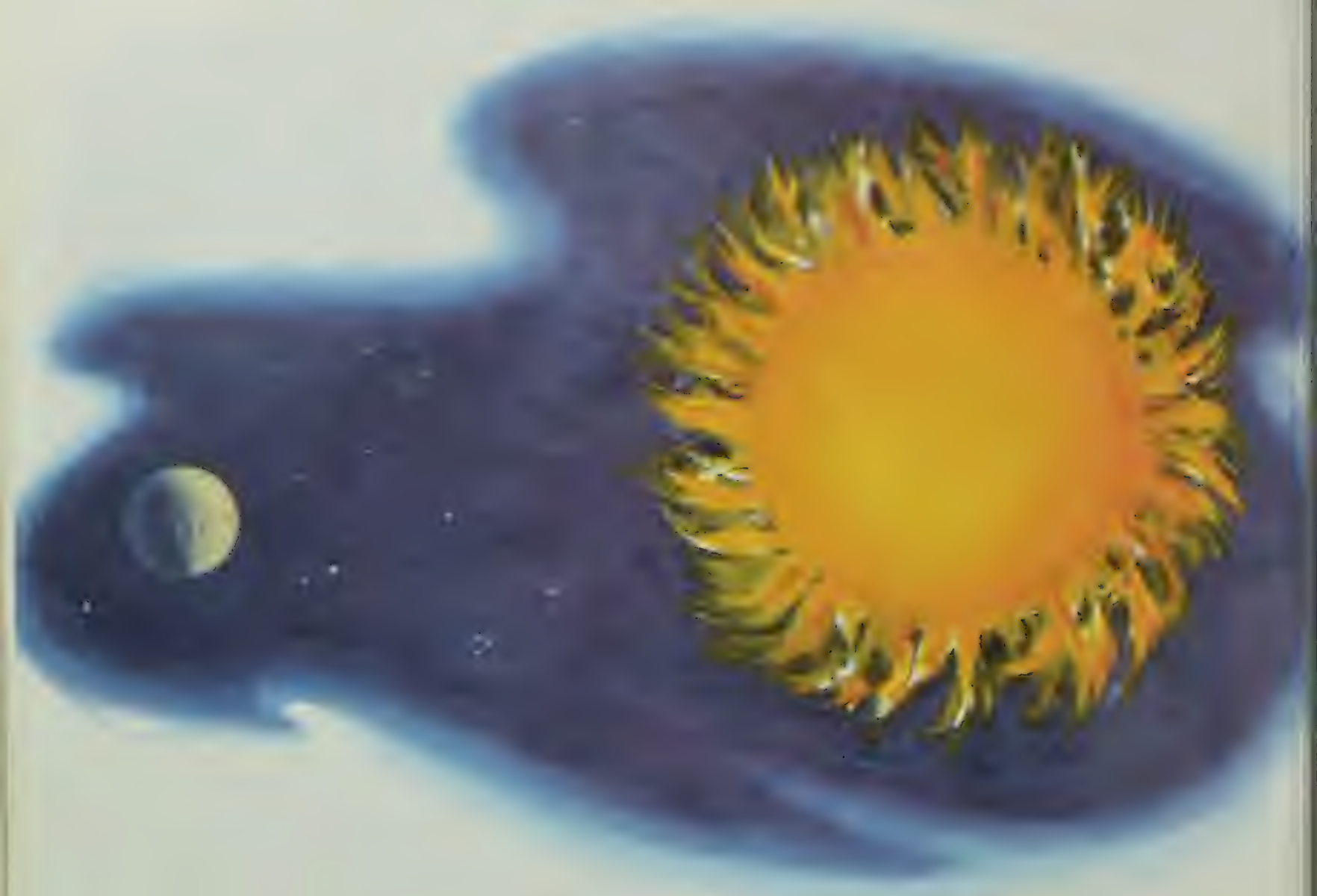
But is the sun small ?

Is it as small as it looks to Mary ?

Look at the sun in the afternoon.

Where do you see it in the afternoon ?

Watch the sun in the west.



The Sun Is Large

The sun is not small.

The sun is very large.

It is larger than many farms.

It is larger than many parks.

It is larger than many lakes.

It is larger than many cities.

The sun is larger than the moon.

It is larger than the big earth.

It is larger than many big earths.

The Sun Is Shining All the Time

Mary is going to school. It is cloudy.

She does not see the sun shining.

But the sun is shining.

It is shining on cloudy days.

It is shining above the clouds.

It is shining on sunny days.

Mary hears an airplane in the cloudy sky.

But she cannot see the airplane.

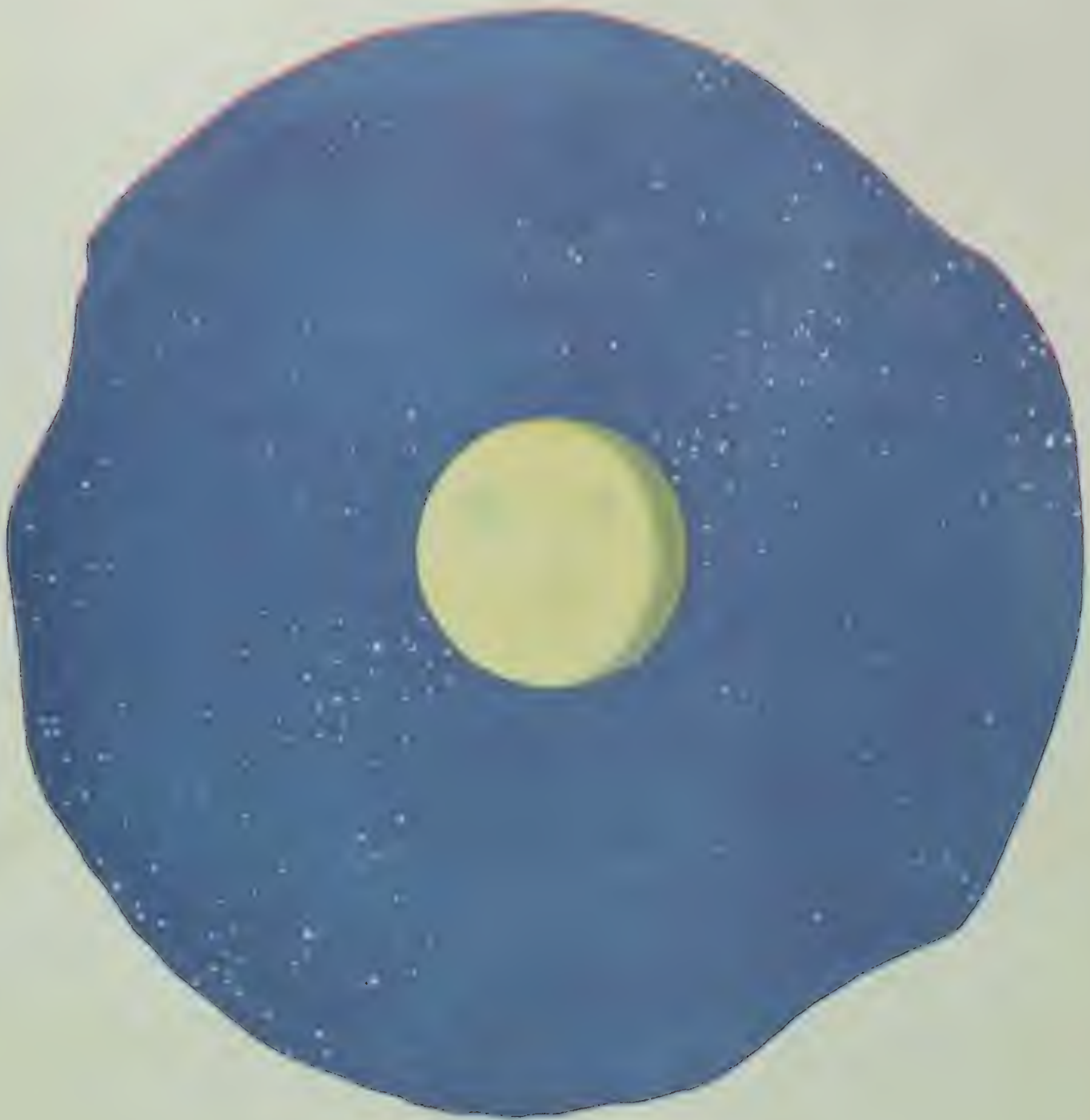
It is flying high above the clouds.

It is in the sunshine above the clouds.

The sun is shining all the time.



The Night Sky



The moon is like a large ball.

But the moon is smaller than the earth.

It is much smaller than the sun.

Sometimes the moon is in the night sky.

Sometimes it makes a bright light in the sky.



Sometimes the moon is not in the night sky.
Then the night is dark, without moonlight.



Sometimes the moon is in the day sky.
But it does not look bright in the daytime.
The moon is not as bright as the sun.
The sun is very, very bright.

Clouds in the Sky



Watch the sky above you.
Do you see clouds ?

Some clouds are light and fluffy.
They are high in the air.
Sometimes they are tiny.

Do you see tiny fluffy clouds in the sky ?
Do you see these clouds moving ?

Some clouds are big and white.
Sometimes they are high in the air.
Some clouds are big and dark.
The dark clouds are low in the air.

Watch the clouds change in the sky.
Sometimes they change very fast.
The wind blows the clouds about.
It blows the clouds about fast.



Low rain clouds

Watch the big dark clouds in the sky.
Watch them come faster and faster.
Here comes the rain now.
The rain comes from the big dark clouds.



Now the rain is over.
At last the big dark clouds are gone.
The clouds in the sky change.



Watching the Sky



Watch the clouds in the sky.

What changes in the clouds do you see?

What do you see in the sky?

Do you see tiny fluffy clouds?

Do you see big white clouds?

Do you see rain clouds?

Are the clouds high or low?

Make a picture of the sky that you see.

Winter



Cold Winter Days

It is winter now where Mary lives.
Some places are very cold in winter.
It is cold in winter where Mary lives.



Mary and the other children look for animals.
They are at the brook near the big woods.
They see some animals moving about.

What animals do you see in winter?
Is it cold in winter where you live?

Animals in the Winter

Some animals stay around all winter.

They look and look for food.

The animals find seeds and nuts to eat.

In autumn some animals lose their old coats.

They grow new coats of hair or fur.

They grow new coats of hair or fur in autumn.

The new coats of hair and fur are warm.

The hair and fur keep the animals warm.



Squirrels are around in winter.

The squirrels eat nuts and seeds.

They eat nuts and seeds they have stored.

They eat food when they can find it.



Sometimes squirrels have places to stay.

They stay in these places on cold days.

They do not eat and run around.

They do not hear noises. They do not see.



You may think the squirrels are sleeping.

You may think they are dead.

But they are not sleeping as you sleep.

They are not dead. They are alive.

The squirrels hibernate.



Some other animals live like the squirrels.

They find places to stay on cold days.

On warm, sunny days they run about.

On warm, sunny days they look for food.

But they hibernate when it is very cold.



Some Animals Hibernate All Winter

Some animals hibernate all winter.
They stay below the frozen ground.
They do not eat. They do not see.
They do not run about on sunny days.
They find a place out of the cold wind.
Here they stay all winter.

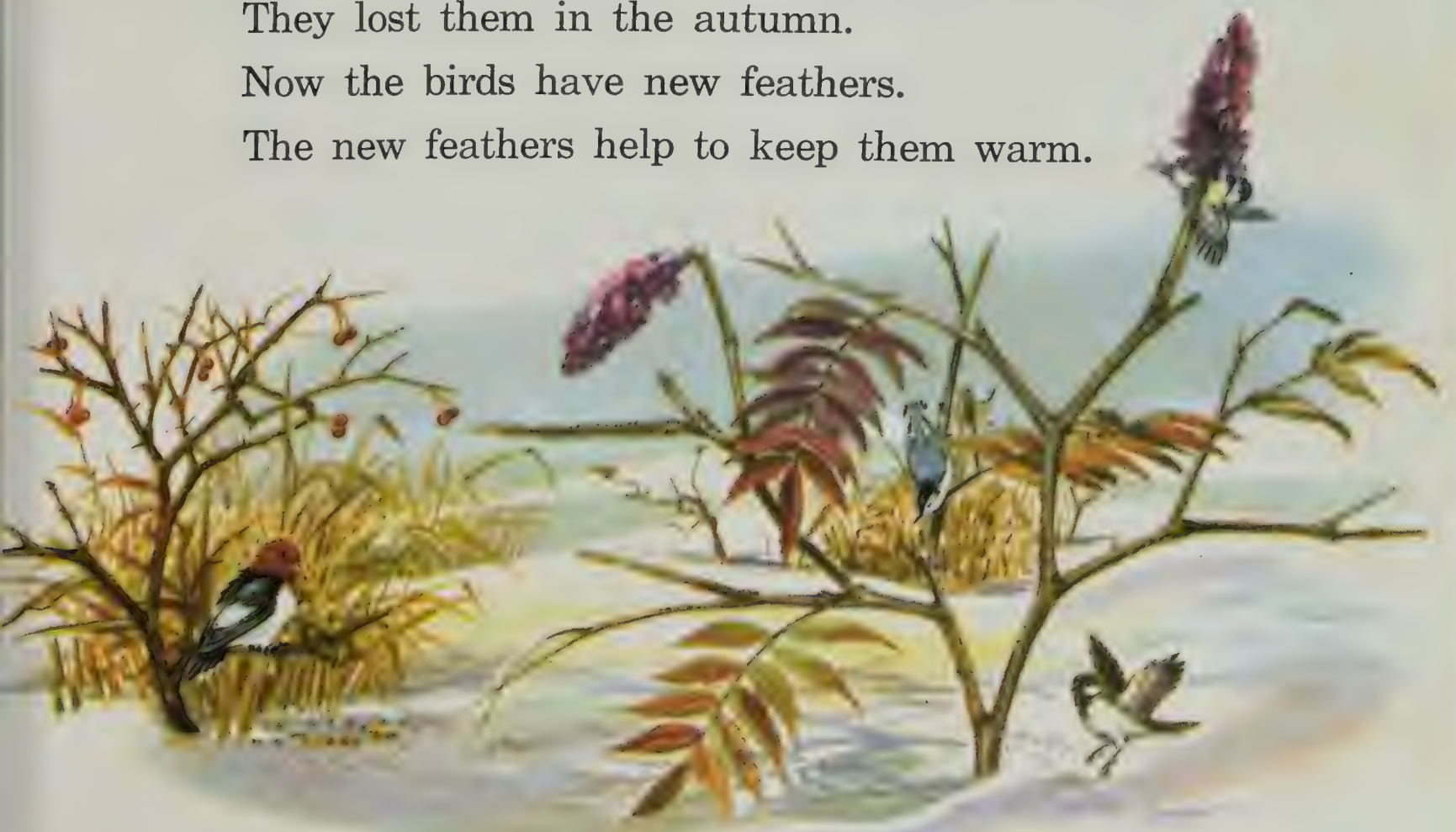
Frogs hibernate all winter.
They stay in the ground near the pond.
Here they are safe from cold winds.
Water in the ground may freeze.
But these animals do not freeze.
They are safe below the frozen ground.
They are safe all the winter.

Do you know any animals that hibernate?

Birds in Winter

Mary sees some other animals.
Some of these animals are birds.
Now there are some new birds.
They were not here last summer.
They were far away from where Mary lives.
They came here from much colder places.
They came from the north.
They will go back in the spring.

The birds fluff and fluff their feathers.
This makes them look big and round.
This helps to keep them warm.
The birds lost some of their feathers.
They lost them in the autumn.
Now the birds have new feathers.
The new feathers help to keep them warm.



Some Plants Live Through the Winter



Autumn



Winter

In autumn the grass changes where Mary lives.
Some of it changes from green to brown.

In the winter some of the grass looks dead.
The grass is brown and dry.
But the grass is not all dead.
The leaves above the ground are dead.
But the roots of the grass are alive.
The roots live through the winter.
They live under the ground.



Spring



Summer

In the spring the grass will grow.

The roots will grow and grow.

The leaves will grow, too.

The grass will get green again.

What color is your grass in the winter?

What color is your grass in the summer?

Does the color of your grass change?

What other plants live through the year?



Leaf buds

Trees Make Changes

Trees live through the winter.

But they make changes before it gets cold.

Some trees lose their leaves.

But these trees make buds.

They make these buds before winter comes.

Leaves will grow from some of the buds.

Leaves will grow in the spring.

Is there a tree near you that you can watch?

Do you see leaf buds on the tree?

Watch the buds this winter and next spring.

Inside the buds are tiny leaves.

The leaves will grow next spring.



Some trees stay green all winter.
They keep most of their leaves.

Pine trees stay green all through the winter.
Pine trees keep most of their leaves.
Pine trees are evergreens.



Many other trees are evergreens.
Evergreens keep most of their leaves all winter.
Their leaves stay green through the winter.

Evergreens may lose some of their leaves.
But evergreens lose only a few leaves at a time.
They get a few new leaves at a time.

Do any trees near you stay green in winter?



Warm Winter Places

Some places are warm in winter.

They are warm in summer.

They are warm most of the time.

Sandy lives in a warm place.

Sandy has never seen snow.

Sometimes it may be cold where he lives.

It may be cold for a few days.

But it is like summer most of the time.

Sandy has green grass in the winter.

He has green grass all through the year.

Many other plants are green in the winter.

There are many flowers too.



Birds in Warm Winter Places

Sandy sees new birds in the winter.
They were not here last summer.
They came here from the north.
It is much colder there in the winter.
The birds fly south for the winter.
They will be warm in the south.
In the spring they will fly north.

Do you live in a place like Sandy's ?
What birds have you seen ?
Do they fly from north to south ?
Do they fly back and forth ?



What Changes Do You See in Winter?



What changes are here in the winter?

How do plants and animals change?

How do they change as it gets colder?

What changes do you see from autumn to winter?



This is Mary's place in the winter.
Is your place like Mary's ?



This is Sandy's place in the winter.
Is your place like Sandy's ?

Do you live in a place of many changes ?
Do you live in a place of few changes ?

Sounds Around You



You Hear Sounds

Beat the drum. Beat the drum hard.
Put your finger on the drum. Feel it.
What do you feel with your finger?
Do you feel the top of your drum moving?

Put a little sand on the top of the drum.

Beat the drum again and again.

What does the sand do when you beat the drum ?

The sand moves up and down, up and down.

The drum makes the sand move up and down.

Strike the drum again and again.

Hear the sound as you strike the drum.

The sound comes to your ears through the air.

You hear the sound.



Sound Goes into the Air



Let the spoon swing back and forth.
Swing the string and spoon many times.
Now let the spoon strike the table.
The spoon moves when it strikes the table.
Does it make a soft sound? Do this again.

The sound goes into the air. It comes to you.
It goes into the air all around you.

Now put one finger in each ear.
Swing the spoon and string back and forth.
Let the spoon strike the table.
What do you hear? Do this again.
Do you hear a louder sound?
Does it sound like a bell to you?

The spoon moves when it strikes the table.
More sound goes through the string to your ears.
Do this experiment again and again.



Sound Goes Through the Air



Listen to the clock ticking.
Is the ticking a soft sound ?
Is the ticking a loud sound ?

Sounds come to you through the air.
They go through the air all around you.

Put one end of the stick to your ear.
Put the other end of the stick on the clock.
What do you hear at the end of the stick?
How does the clock sound to you now?
Is the ticking sound loud or soft?
Can you hear the clock better through the stick?
The sounds go through the stick to your ear.
You hear louder sounds through the stick.



Some Things Vibrate



Strike the cymbals together.

Strike the cymbals together hard.

Do the cymbals make a loud sound?

Feel one cymbal quickly. What do you feel?

You feel the cymbal moving back and forth.

When things move back and forth, they vibrate.

Do you feel the cymbal vibrate?

You hear a sound when something vibrates.

What other things do you know that vibrate?

Push the button. The bell rings.

Push the button again.

Feel the bell as it is ringing. Is it moving?

How did the bell make your finger feel?

The bell is moving back and forth.

When things move back and forth, they vibrate.

You hear the bell when it vibrates.



Sounds out of Doors



Clinkety-clank ! Clinkety-clank !
How many sounds in the city do you know ?
Bells ring. Children call. Trucks roll by.
Many people think our cities are too noisy.
They do not like to hear so much noise.
Some day our cities will be better.
Some day our cities may have less noise.

Is it noisy where you live ? Listen to sounds.
What can people do to have less noise ?

Buzz! Buzz! Buzz! Hear the bees.

How many outdoor sounds do you know?

Birds sing. Water splashes. Leaves move.

Sounds of things that vibrate go through the air.

Listen to the outdoor sounds around you.

What outdoor sounds do you like to hear?



Sounds Help Us



Sounds tell us that something is near.
Sounds tell us that something is far away.
They help us in many ways.

How do sounds help you ?

What Sounds Do You Hear?

1. What can you feel that vibrates?



2. What sounds can you hear in these places?

In a city

In a park

On a farm

In the woods

3. What sounds can you hear around you?

In your school

In a barn

In your home

On a train

4. Take a walk out of doors.

What sounds do you hear?

What sounds do you like to hear?

What sounds do you not like to hear?

Sounds I Like to Hear	Sounds I Do Not Like to Hear
Leaves moving Birds singing	

Spring



Spring Is Here

It is spring now where Mary lives.
Winter is over, and spring is here.



Days are getting longer. There is more light.
Days are getting warm. Plants will grow.
Now there are young animals.
The children are outdoors again.
Now they look for changes in the spring.
They go to a meadow and a pond.
They look about for the birds.

Birds Are Moving About

It is the birds' moving time again.
Last autumn they moved south.
Now they are moving north.

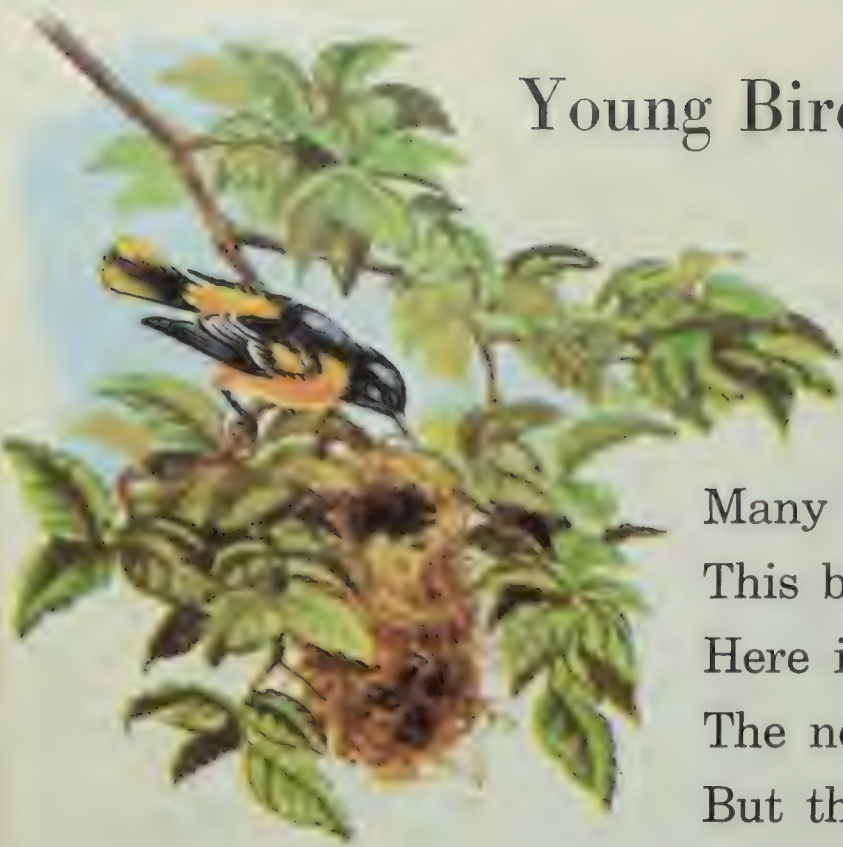
Some birds will stay here all summer.
But some of the birds will not stay long.
They will stop only to eat and rest.
They will stop to eat and rest many times.
Then the birds will fly on and on.
Some will fly far away. They will fly north.
There they will stay for the summer.





The birds were not noisy last autumn.
Now they are noisy as they fly about.
They are not like the birds of last autumn.
In the spring there are many singing sounds.
The birds sing as they build their nests.
Now there are many sounds all about.

Young Birds in the Spring



Many birds are building nests now.
This bird builds a nest high in a tree.
Here it will lay its eggs.
The nest may swing back and forth.
But the eggs will be safe here.
The young birds will be safe, too.



Tap, tap, tap goes this bird.
The bird taps louder and louder.
It makes a hole in the tree.
The hole gets larger and larger.
The hole makes a safe nest.
The bird will lay eggs in its nest.

Some birds build nests near the ground.
Others make their nests on the ground.
The birds lay eggs in their nests.



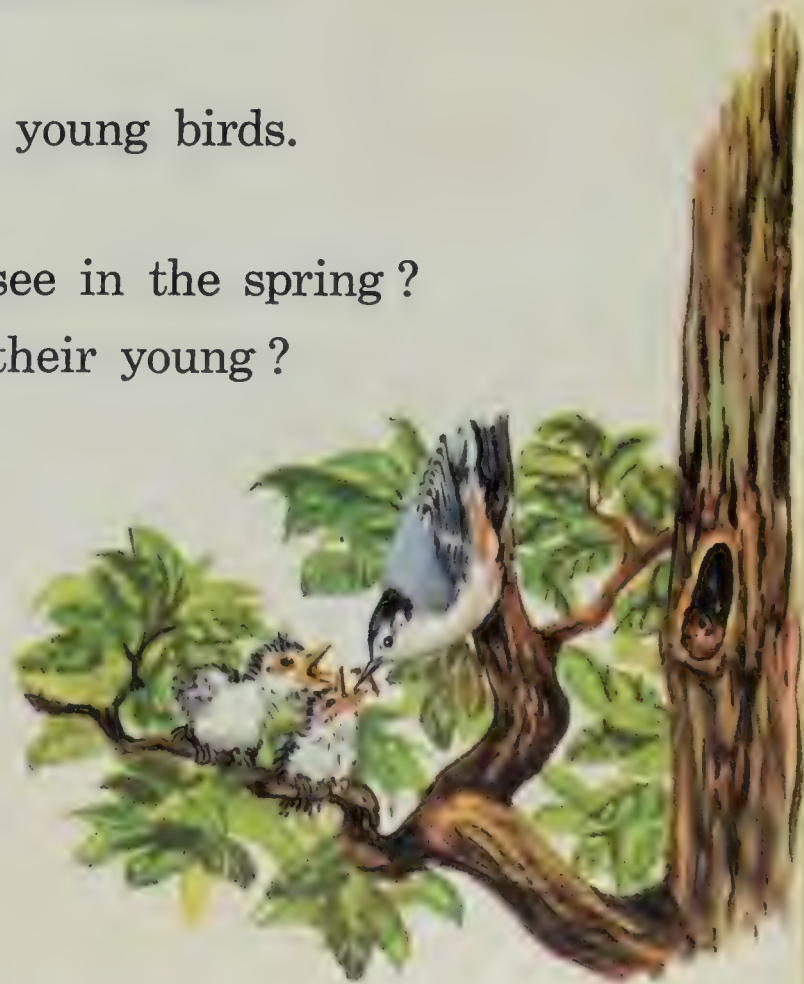


Some birds build nests near the water.
They get their food from the water.

There are many kinds of nests.
Each nest is a good one.
It is good for the bird that uses it.

Some nests have eggs in them now.
Some nests have young birds in them.
The birds feed their young.
They feed and care for the young birds.

What young birds do you see in the spring?
Do you see the birds feed their young?



Other Animals in the Spring



These animals are about now.
They go about looking for food.
What animal homes do you see here ?



In the spring there are many young animals.
Some have little care. Some have much care.
Each animal has as much care as it needs.

What animals do you see in the spring ?
How do they care for their young ?



Changes Around the School

It is spring at the school.

The children see changes in the spring.

They see new plants around the school.

The children help to care for the school.

They work in many places around it.

They help to make it safe too.

Soon the school will look better.



How can you help to make your school look better?

How can you help to make it a safe place?

How do you help to care for the out of doors?

What changes do you see around you in the spring?



Where Should Animals Live ?

Mary found a turtle near the pond.
She took the turtle to school.

“Where should we keep our turtle ?”
asked Bob. “Is a jar a good place for it ?”

“Where did you find the turtle, Mary ?”
asked Miss Day.

“I found it near our pond,” said Mary.

“We can make a jar like the pond,”
said Bob. “We can make it like the pond
near the woods.”



Mary and Bob found a jar for the turtle.
They made it like the pond.

“Now our jar is like the woods,” said Bob.

“But our jar is too small,” said Mary.

“Our turtle needs a place like the big woods.
Let's take the turtle outdoors.”

"Keep the turtle a day or two," said Miss Day.

"Then take it outdoors to live."

"Outdoors is a good place," said Mary.

"A good place for the turtle is the big woods."

"It can be our turtle," said Bob.

"But it will be in the big woods."

Most animals live in places that are good for them. If you bring them to school, they need a good place to live. They need a place much like the one they had outdoors.



Changes in the Spring



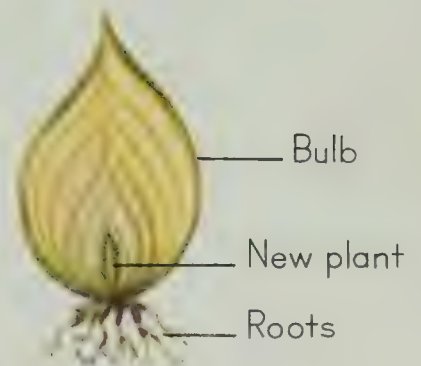
It is spring in the city too.
There are many changes in the spring.
New leaves come out of leaf buds.
The tiny leaves look like red and yellow fluff.
There are many colors in the spring.

What changes in the spring do you see?
Are the days getting longer now?
Watch for flower buds. Watch for leaf buds.
Watch for new leaves in the spring.



Grass is turning green. It is growing.
 Grass roots lived all through the winter.
 Growing things are making changes.
 Spring is here. Days are longer.

Now there are plants with flowers too.
 Some plants grow from bulbs in the ground.
 The bulbs were in the ground all the winter.
 They were alive all through the winter.
 New plants grow from the bulbs in the spring.
 New plants grow from old ones.



Can you see the new plant in a bulb?



Spring in the City Park

Do you live in the city ?

Do you go to the park in the spring ?

What young animals do you see there ?

What are they doing ?

Last winter there were many sparrows in the park.

But now there are sparrows and other birds too.

Some of the birds are moving north.

Some of them stop to rest and eat here.

There is water for them in the park.

Tomorrow they will fly on and on.

But some of the birds will stay in the park.
Some of the sparrows will stay in the park.
Here they will lay their eggs.
Soon they will care for their young.

People in the city want the birds.
They want the birds to stay in the park.
They want the birds to rest and eat there.

What birds do you see in your park?
What can you do to help them?



Spring Comes to a Dry Place



Tom is helping his father.
They are getting the garden ready.
They will let the water go into ditches.
The water will wet the soil.

Soon the soil will be ready for the seeds.
Soon the garden will be green.
The farm will be green, too.



Tom likes the springtime.
He likes to see the water in the ditches.
The water comes from the snow.
It comes from the snow in the hills.
It comes from the hills far away.

It is very dry most of the time where Tom lives.
Sometimes it rains in the spring.
It has rained a little this spring.
Now there are many flowers where Tom lives.

Spring in Many Places



There are a few of these flowers in the spring.
Mary will not take any of these flowers.
There will be seeds. They will make new plants.



There are many of these flowers in the spring.
Mary can take a few of them to school.
She will leave many flowers to grow.



Tom likes this place in the spring.
Many flowers come after the spring rains.



This is Sandy's place in the spring.
It is warm much of the time.

What changes do you see where you live?

Friction



Smooth and Rough Things

Move your finger over sandpaper.

Move your finger over many things.

Which are rough? Which are smooth?

Some things are very rough.

Some things are very smooth.



Rubbing Warms Things

Mary saws the wood.
Back and forth she moves the saw.
The saw rubs the wood.
Back and forth goes the saw.
The wood is very rough.
The saw rubs the wood hard.
The saw is getting warm.
It gets warm rubbing the wood.
Rubbing makes the saw warm.



It is a very cold day.
Bob shows Mary how to warm her fingers.
Mary rubs her fingers together.



Bob rubs the table with paper.
Soon the paper gets warm.
Bob's fingers get warm, too.

Try rubbing a stick with sandpaper.
Does the stick get warm?



Moving a Heavy Box

Bob is pulling the heavy box.

Mary is pushing the heavy box.

They try to move the box over the floor.

How hard they push and pull!

They move the heavy box a little.

Is something holding it?

Friction is holding the heavy box.

There is friction when two things rub.

The box rubs on the floor.



Mary puts a roller under the box.
The roller turns over and over.
Now there is less friction.
The heavy box moves a little.



Now the heavy box moves a little more.
The rollers roll over the floor.
The box moves over the rollers.
Now the heavy box does not rub the floor.
There is less friction with the rollers.

Brakes Stop Things



The boy has a stick.
The stick is a brake.
The brake rubs a wheel.
The brake stops the wheel.
Then the wagon stops.

The car has brakes, too.
The brakes rub the wheels.
The brakes stop the wheels.
The wheels rub the ground.
Then the car stops.

Friction Around You



Where is there much friction ?
Where is there little friction ?

Making Things Stop



What makes these things stop ?

Making Things Move



Making Toys Move

Do you play with toys like any of these?
Do you know what makes them move?
Can you experiment to find out?

You Move Some Things

Bill pushes this train.

It moves when Bill pushes it.

The train stops when Bill stops.



Bill pulls this wagon.

It moves when Bill pulls it.

The wagon stops when Bill stops.



You make many things move.

Then you do work.

Making things move is work.



Springs Move Some Things



What makes this train move ?

Does something in the train make it move ?

The spring in the train moves.

Now the train moves, too.

The spring makes the train move.

The spring does work.

Soon the spring will stop.

Then the train will stop, too.

Getting a spring ready to work



What Makes the Train Move?

What makes this train move ?

Does Bill push or pull it on the tracks ?

Does a spring make it move on the tracks ?

What does the work ?

How does Bill stop the train ?

Electricity moves the train.

Electricity does the work.

How does electricity work for you ?



The Wind Moves Things



Sometimes air moves slowly.
Sometimes air moves very fast.
It moves fast when the wind blows hard.
The wind pushes Bill as he walks.
The wind is strong.

Betty has put sails on her boat.
The wind moves the sailboat.
The sailboat moves fast.
The wind moves many things.

The Wind at Work



Some farmers put wind to work.
The farmers use windmills to make wind work.
The wind turns the wheel round and round.
The windmill pumps water for the farm animals.
The windmill pumps water for the people.
It pumps water for the garden.

What do you see the wind moving ?

Water Moves Things



Betty and Bill are playing at the brook.

They are playing with their boats.

The water is moving their boats.

Betty's boat is moving fast.

Bill's boat is moving slowly.

Sometimes water moves fast.

Sometimes water moves very slowly.

When the water moves fast, the boats move fast.

Here the water moves fast.

It falls over the rocks.

It moves the rocks around.

It moves the sand around.

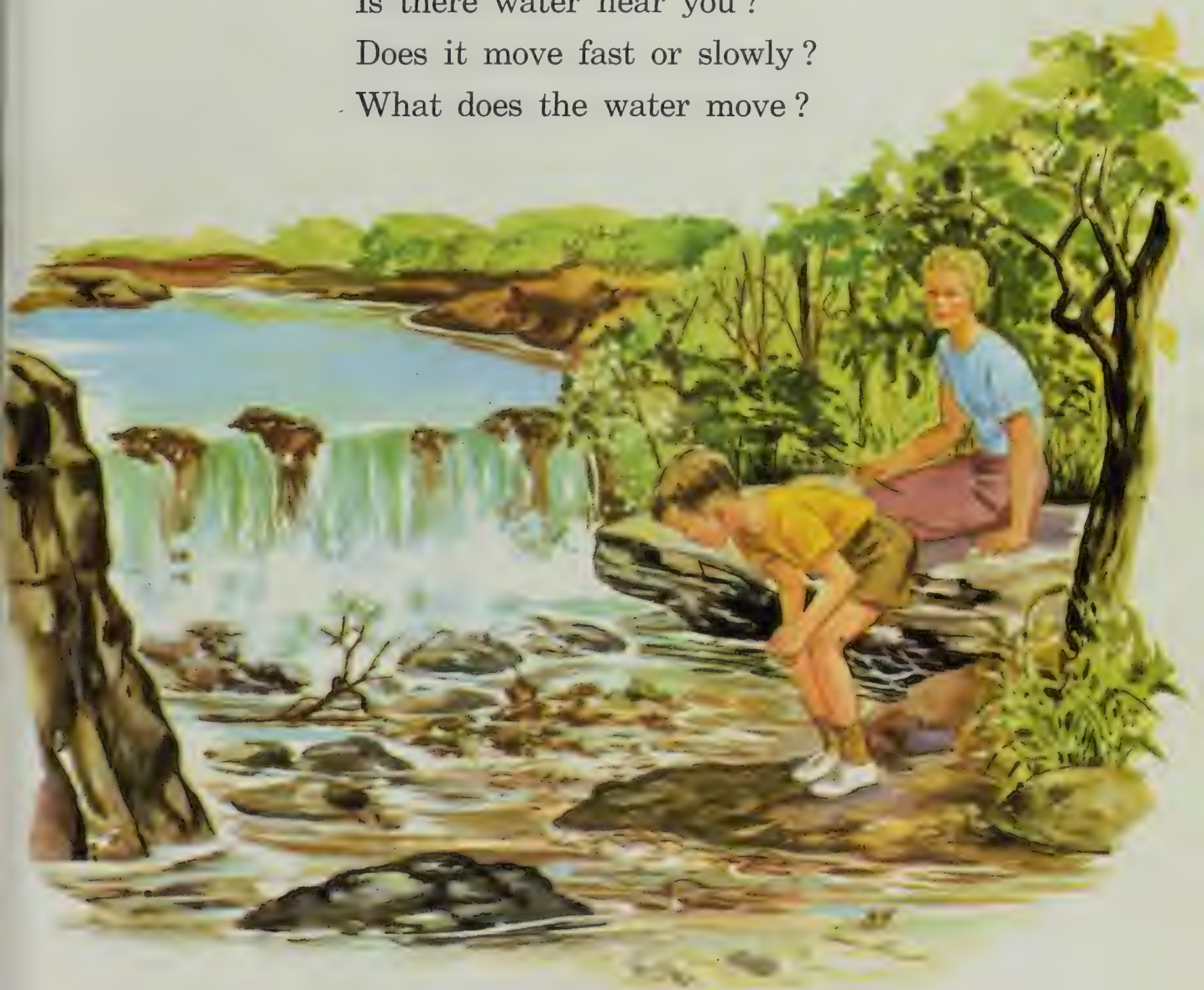
Water moves many things.

Water is strong.

Is there water near you ?

Does it move fast or slowly ?

What does the water move ?



Water at Work

Here is a powerhouse.

In the powerhouse there are big wheels.

Water turns the big wheels around.

The water makes them go round and round.

The wheels turn machines that make electricity.

Electricity goes from this powerhouse.

Electricity goes through wires.

It goes through wires to many places.

Where do you see wires?

Is there a powerhouse near you?



Electricity Moves Things



There is a big train. How fast it goes!
It goes much faster than you can run.
The big wheels help it to move fast.
The big wheels move on tracks.
The smooth tracks help the train to move fast.

Electricity makes this train move.
It comes to the train through the wires.
It comes through the wires from far away.
It comes through the wires from a powerhouse.

Steam Moves Some Trains

The big steam engine pulls the cars.
The steam engine pulls many cars.
It pulls cars from farms to cities.
Steam engines pull many kinds of cars.
They pull them over the smooth tracks.

Water is heated in the engine.
Water boils in the big engine.
It boils fast. It boils hard.
Water boiling turns to steam.
Steam is strong. It moves the train.
Steam can do work for us.





Gasoline Moves Things

Gasoline makes the airplane move.
Gasoline makes the tractor move.
It makes your father's car go.
It moves many machines.
Gasoline does work. It works for us.

What machines do you see?
Which machines use gasoline?

What Makes These Things Move?



What Makes These Machines Do Work?



Care of the Farm



Soil Needs Care

Jim and his father are out for a walk.
They are looking at the farm.



“We have good soil,” said Father. “Feel it.
My father took good care of the soil.
He was a good farmer.
I try to be a good farmer, too.”
“I will be a good farmer some day,” said Jim.
“Farmers must care for the soil,” said Father.
“Good soil makes a good farm.
Our soil has not washed away.
The plants on our farm help us.
Our plants help to hold the soil.”

Horses Need Care

Strong horses help on the farm.

Strong horses help to do the work.

The horses must have food and water.

Horses must not work all the time.

They need to rest sometimes.

They need a good place in cold weather.

Horses must have good care.

Horses must be strong.





Tractors Need Care

The tractor helps to do work on the farm.
It is a machine. It is not alive.
But a machine needs care, too.
The tractor should not stay out in the rain.
Parts of the tractor are made of iron.
Iron will rust when it is wet.
The tractor will rust when it is wet.
You can find out more about rust.

Put some iron nails in a glass of water.
Soon there is rust on the nails.
The rust is brown.
The nails are rusting.



Iron rust on nails

How can you keep things from rusting ?

A Home for Animals

"There are many animals here," said Father.

"Our woods are the home of animals."

"Maybe we can see a deer," said Jim.

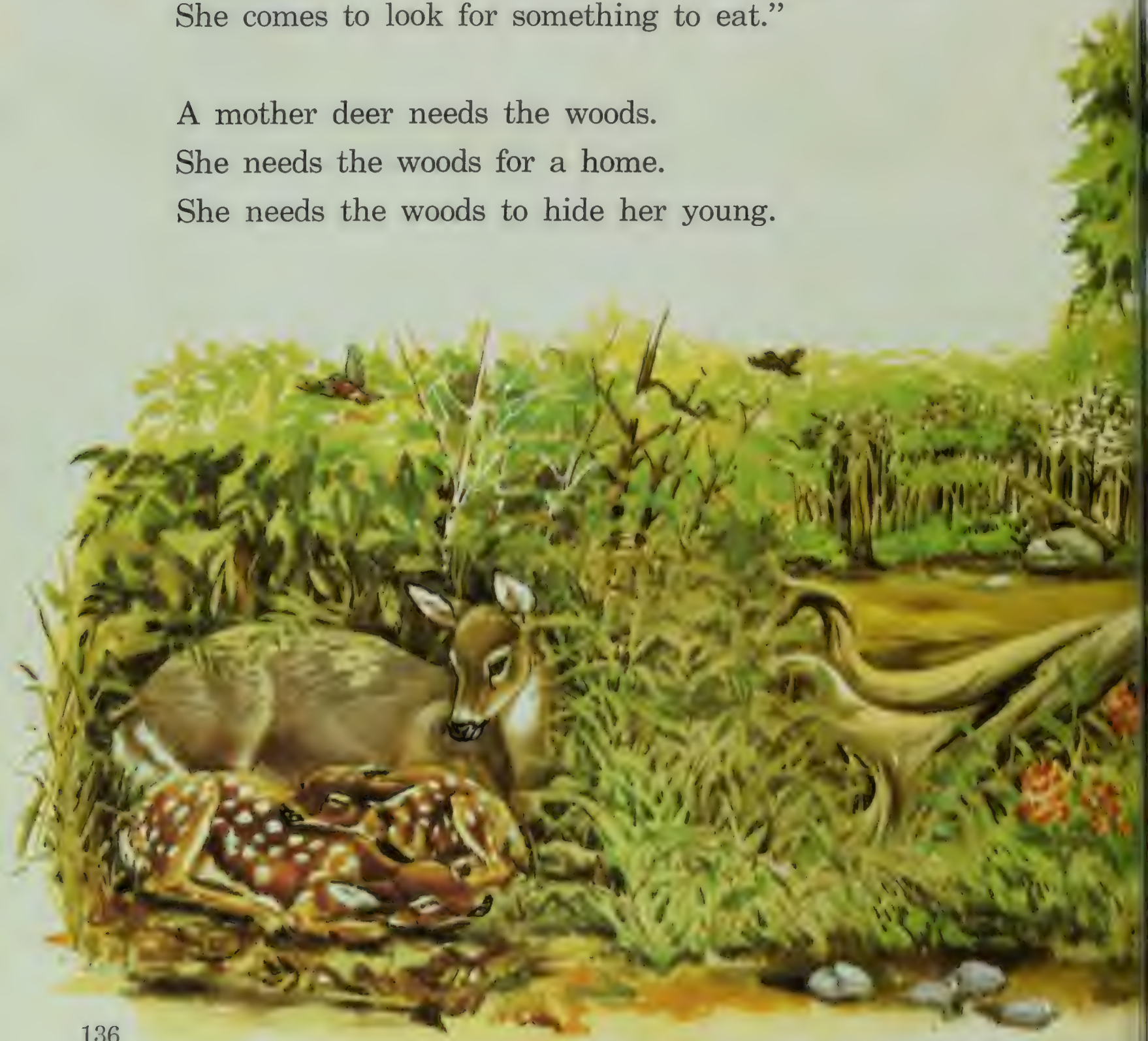
"Maybe we can see a mother deer," said Father.

"Sometimes a mother deer comes out of the woods.
She comes to look for something to eat."

A mother deer needs the woods.

She needs the woods for a home.

She needs the woods to hide her young.



The woods are the home of many animals.
There are many birds in the woods.
Many of them need trees for their nests.
They need the woods for their young too.
The woods are a good home for some animals.



The Woods Help

"I like to walk in our woods," said Jim.

"I like our woods, too," said Father.

"The woods help our farm."

"How can they help our farm?" asked Jim.

"Our woods are here on the hill," said Father.

"The trees help to hold the soil.

They help to keep the soil on the hill.

The soil does not wash into the brook.

The brook does not take the soil to the river."





The Leaves Help

"Look how the leaves cover the ground," said Jim.

"The leaves make a carpet."

"They make a very good carpet," said Father.

"The carpet helps to hold the soil, too.

The trees and the carpet of leaves help.

They help to hold the soil on the hill.

They keep the soil from washing away."

"The leaves on top look dry," said Jim.

"But the leaves under them feel wet.

The ground feels wet, too."

"The ground does not dry quickly," said Father.

"The leaves help to hold the water.

The leaves help to hold our soil.

Our soil does not wash away."

Here there are many leaves on the ground.
The leaves fall year after year.
The leaves dry and break up.
But they help little plants in the winter.
They cover the plants in the winter.
The leaves help to keep the ground wet.
They keep the little plants from drying out.
They help the plants to live during the winter.

The roots of the plants live under the snow.
They live all through the winter.
Then the plants grow and grow in the spring.





Young Trees Grow

Jim and his father look at the young trees.
Many little pines and other trees are growing.

These trees are part of the farm.
Trees grow here all the time.
Sometimes a few trees are cut down.
But little trees are planted.
They are planted where big trees were cut.
Little trees are growing all the time.

Jim's father plants young trees.
He takes care of his forest.

Soil Helps the Farm

"This soil helps to make our farm," said Jim.
Father said, "It helps all our plants to grow.
We could not have a good farm without good soil.
We need good soil. We need good forests.
Our country needs good soil and good forests."



Watching Plants and Soil

Take a walk in the woods near you.

Do you see a carpet of leaves ?

How do the leaves help ?

Do you see young trees growing ?

How are the woods cared for ?

Take a walk near your school.

Look at the soil around you.

Does water wash the soil away ?

How can you help to care for the soil ?

Plants will not grow well without good soil.

Our country needs good farm lands.

Our country needs good forests too.



GINN AND COMPANY